

Amendments To The Claims

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

1. (cancelled)
2. (cancelled)
3. (cancelled)
4. (cancelled)
5. (cancelled)
6. (cancelled)
7. (cancelled)
8. (cancelled)
9. (cancelled)
10. (cancelled)
11. (cancelled)
12. (currently amended) A breathing gas supply system for supplying breathable gas in an aircraft including an oxygen enriching apparatus which is operable in at least two modes to provide product gas with varying oxygen concentrations, a first feed line to feed more highly enriched product gas to one or more breathing gas outlets, and a second feed line to feed less highly enriched product gas to an aircraft cabin for breathing during normal high altitude flight, and a controller to control the oxygen

enrichment apparatus to provide highly enriched product gas to the breathing gas outlet or outlets in the first mode of operation or less highly enriched product gas to an aircraft cabin for breathing during normal high altitude flight, and to control a diverter valve which directs the product gas to the respective feed line.

13. (currently amended) A system according to claim ~~1~~12 wherein in the first mode of operation the more highly enriched product gas is fed to a plurality of gas outlets; ~~and in the second mode of operation the less highly enriched product gas is fed to an aircraft cabin for breathing during normal high altitude flight.~~

14. (currently amended) A system according to claim ~~1~~12 wherein the oxygen enriching apparatus includes a plurality of molecular sieve beds which are operable cyclically to adsorb non-oxygen gas during a charging phase to produce product gas for breathing, and de-adsorb non-oxygen gas to atmosphere during a venting phase to clean the bed of non-oxygen gas, the product gas produced in the second mode of operation having about a 40-60% oxygen concentration, whilst the product gas produced in the first mode of operation has about a 70-90% oxygen concentration.

15. (currently amended) A system according to claim ~~1~~12 wherein the oxygen enriching apparatus includes a plurality of molecular sieve beds which are operable cyclically to adsorb non-oxygen gas during a charging phase to produce product gas for breathing, and de-adsorb non-oxygen gas to atmosphere during a venting phase to clean the bed of non-oxygen gas, the product gas produced in the second mode of operation having about a 50% oxygen concentration whilst the product gas produced in the first mode of operation has about an 80% oxygen concentration.

16. (currently amended) A system according to claim ~~2~~12 wherein the product gas produced in the second mode of operation is diluted for use by being diluted for use with recirculated cabin air prior to introduction into the cabin for normal breathing so

that the oxygen concentration of the air breathed normally in the cabin is not significantly greater than that of ambient air.

17. (currently amended) A breathing gas supply system for supplying breathable gas in an aircraft including an oxygen enriching apparatus which is operable in at least two modes to provide product gas with varying oxygen concentrations, a first feed line to feed more highly enriched product gas to one or more breathing gas outlets, and a second feed line to feed less highly enriched product gas for breathing, and a controller to control the oxygen enrichment apparatus to provide highly enriched product gas to the breathing gas outlet or outlets in the first mode of operation or less highly enriched product gas for breathing, and to control a diverter valve which directs the product gas to the respective feed line, wherein the oxygen enriching apparatus includes a plurality of molecular sieve beds which are operable cyclically to adsorb non-oxygen gas during a charging phase to produce product gas for breathing, and de-adsorb non-oxygen gas to atmosphere during a venting phase to clean the bed of non-oxygen gas, the product gas produced in the second mode of operation having about a 40-60% oxygen concentration, whilst the product gas produced in the first mode of operation has about a 70-90% oxygen concentration, and system according to claim 3 wherein the oxygen enriching apparatus includes a first number N molecular sieve beds, and in the first mode of operation a second number X molecular sieve beds less than the first number N are operated to produce the highly enriched product gas at a flow rate of Y, and in the second mode of operation all N molecular sieve beds are operated to produce the less highly enriched product gas at a flow rate Z, where Z is greater than Y.

18. (currently amended) A system according to claim 6-17 wherein the controller is capable of switching the oxygen enriching apparatus between operating modes and of ~~optimising~~ optimizing use of the oxygen enriching apparatus when operating at less than maximum demand.

19. (currently amended) A system according to claim ~~7~~18 wherein the controller is programmed to select a third-number X of the N molecular sieve beds to operate when less than the maximum demand is required to be fulfilled, and an operating cycle to operate those selected beds.
20. (currently amended) A system according to claim ~~6~~17 wherein in the second mode of operation, all N beds are operated, and each bed is operated in sequence with a charge-to-vent ratio of about 1:N.
21. (currently amended) A system according to claim ~~6~~17 wherein in the first mode of operation when X of the N beds is operating, each of the X beds is operated in sequence with a charge to vent ratio of about ~~1:X~~1:X.
22. (currently amended) An aircraft including a breathing gas supply system including an oxygen enriching apparatus which is operable in at least two modes to provide product gas with varying oxygen concentrations, a first feed line to feed more highly enriched product gas to one or more breathing gas outlets in an aircraft cabin, and a second feed line to feed less highly enriched product gas to the aircraft cabin for breathing during normal high altitude flight, and a controller to control the oxygen enrichment apparatus to provide highly enriched product gas to the breathing gas outlet or outlets in the first mode of operation or less highly enriched product gas to the aircraft cabin for breathing during normal high altitude flight in the second mode, and to control a diverter valve which directs the product gas to the respective feed line.
23. (cancelled)
24. (new) A method for supplying breathing gas to occupants of an aircraft cabin during high altitude flight comprising the steps of providing an oxygen enriching apparatus which is operable in at least two modes to provide product gas with varying oxygen concentrations, controlling the oxygen enrichment apparatus to provide highly enriched product gas when in a first operating mode and less highly enriched product gas for breathing when in a second operating mode, providing the more highly

enriched product gas from the apparatus to one or more emergency breathing gas outlets in the aircraft cabin in the first operating mode, and providing the less highly enriched product gas from the apparatus to the aircraft cabin for breathing by occupants during normal high altitude flight in the second operating mode.